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(FILE 'HOME' ENTERED AT 08:05:58 ON 13 APR 2009)

FILE 'LREGISTRY' ENTERED AT 08:06:36 ON 13 APR 2009  
ACT BER773D/Q

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L1 STR  
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D QUE STAT

FILE 'REGISTRY' ENTERED AT 08:09:50 ON 13 APR 2009  
ACT BER773C/A

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L2 STR  
L3 89851 SEA SSS FUL L2  
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L4 0 SEA SUB=L3 SSS SAM L1  
L5 10 SEA SUB=L3 SSS FUL L1

FILE 'HCAPLUS' ENTERED AT 08:10:43 ON 13 APR 2009  
L6 5 SEA SPE=ON ABB=ON PLU=ON L5

FILE 'REGISTRY' ENTERED AT 08:10:54 ON 13 APR 2009

FILE HOME

FILE LREGISTRY  
LREGISTRY IS A STATIC LEARNING FILE

NEW CAS INFORMATION USE POLICIES, ENTER HELP USAGETERMS FOR DETAILS.

FILE REGISTRY  
Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 12 APR 2009 HIGHEST RN 1133953-33-9  
DICTIONARY FILE UPDATES: 12 APR 2009 HIGHEST RN 1133953-33-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 9, 2009.

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

FILE HCPLUS

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FILE COVERS 1907 - 13 Apr 2009 VOL 150 ISS 16  
 FILE LAST UPDATED: 12 Apr 2009 (20090412/ED)

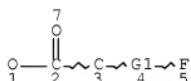
HCPlus now includes complete International Patent Classification (I reclassification data for the third quarter of 2008.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que stat 13  
 L2 STR



REP G1=(1-20) A  
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 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

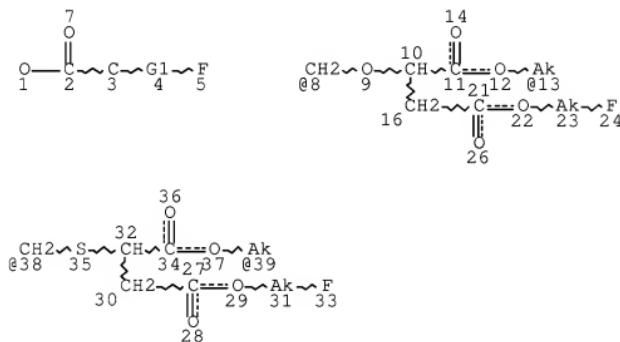
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L3 89851 SEA FILE=REGISTRY SSS FUL L2

100.0% PROCESSED 917367 ITERATIONS  
SEARCH TIME: 00.00.06

89851 ANSWERS

=> d que stat 15  
L1 STR

VAR G1=8-3 13-5/38-3 39-5

NODE ATTRIBUTES:

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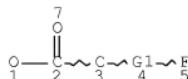
DEFAULT ECLEVEL IS LIMITED

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STEREO ATTRIBUTES: NONE

L2 STR



REP G1=(1-20) A

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L3 89851 SEA FILE=REGISTRY SSS FUL L2

L5 10 SEA FILE=REGISTRY SUB=L3 SSS FUL L1

100.0% PROCESSED 353 ITERATIONS

10 ANSWERS

SEARCH TIME: 00.00.01

=&gt; d 16 1-5 bib abs hitstr hitind

YOU HAVE REQUESTED DATA FROM FILE 'HCAPLUS' - CONTINUE? (Y)/N:y

L6 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2009 ACS on STN  
 AN 2004:873917 HCAPLUS Full-text  
 DN 141:367644  
 TI Fluoro surfactants with balanced solubility and surfactancy  
 IN Otaguro, Tsuneyuki; Kinoshita, Koji  
 PA Dainippon Ink and Chemicals, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 30 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
PI	JP 2004292658	A	20041021	JP 2003-87673	

PRAI JP 2003-87673

20030327

AB Title surfactants comprise surfactants containing same of different  $\geq 2$  organic groups and oxyalkylene chains  $F(CF_2)_mRYC(:O)$ , wherein  $m = 1-20$  integer;  $R = (CH_2)_n$  or  $X(CH_2)_n$ ;  $n = 1$  or  $2$ ;  $X =$  divalent bond; and  $Y = O$  or  $S$ . Thus, 3,3,4,4,5,5,6,6,6-nonafluorohexanol 400.0, thiomalic acid 75.0, and concentrated sulfuric acid 5.0 g, and toluene 100 mL were refluxed, 40 g slaked lime was added therein and stirred to give 320 g thiomalic acid di-(3,3,4,4,5,5,6,6-6-nonafluorohexyl) ester, 45.0 g of which was reacted with 66.7 g polyethylene glycol mono(2-chloroethyl) ether at  $80^\circ$  for 5 h to give a fluoro surfactant with good solubility in water (0.5 % and 1.0%) and surface tension 21.4 mN/m at 0.1%, 18.5 mN/m at 0.5%, and 18.0 mN/m at 1.0%.

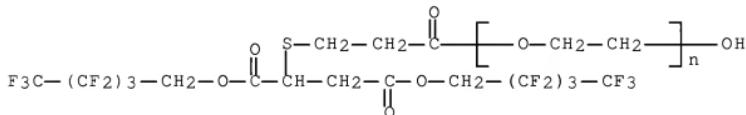
IT 777945-81-0P 777945-82-1P 777945-91-2P

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(preparation of fluoro surfactants with balanced solubility and surfactancy)

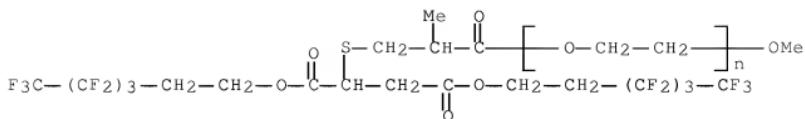
RN 777945-81-0 HCPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[3-[[3-[(2,2,3,3,4,4,5,5,5-nonafluoropentyl)oxy]-1-[(2,2,3,3,4,4,5,5,5-nonafluoropentyl)oxy]carbonyl]-3-oxopropyl]thio]-1-oxopropyl]- $\omega$ -hydroxy- (9CI) (CA INDEX NAME)



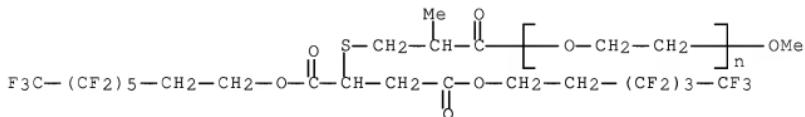
RN 777945-82-1 HCPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[2-methyl-3-[[3-[(3,3,4,4,5,5,6,6,6-nonafluorohexyl)oxy]-1-[(3,3,4,4,5,5,6,6,6-nonafluorohexyl)oxy]carbonyl]-3-oxopropyl]thio]-1-oxopropyl]- $\omega$ -methoxy- (9CI) (CA INDEX NAME)



RN 777945-91-2 HCAPLUS

CN Poly(oxy-1,2-ethanediyl),  $\alpha$ -[2-methyl-3-[3-[(3,3,4,4,5,5,6,6,6-nonafluorooctyl)oxy]3-1-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]carbonyl]-3-oxopropylthio]-1-oxopropyl]- $\omega$ -methoxy- (9CI) (CA INDEX NAME)



IC ICM C11D001-72

ICS B01F017-42; C07C323-52

CC 46-3 (Surface Active Agents and Detergents)

Section cross-reference(s): 38

IT 777945-80-9P 777945-81-0P 777945-82-1P

777945-84-3P 777945-85-4P 777945-88-7P 777945-89-8P

777945-91-2P 777945-92-3P 777945-94-5P

RL: IMF (Industrial manufacture); PRP (Properties); PREP

(Preparation)  
(preparation of fluoro surfactants with balanced solubility and surfactancy)

ANSWER 2 OF 5 HCABRIUS COPYRIGHT 2009 ACS ON STN

AN 1974:553046 HCAPIUS Full-text

DN 81-153046

DN 81:195040

TI Borfluoroalkyl carboxylic acids

II Ferriferrocenyl carboxylic acids  
IN Kleiner, Eduard K.; Falk, Robert A.

IN Riehmer, Eduard  
BA Siba-Saigu A-6

PA Ciba-Geigy A.G.  
SO Cor. Offen 37

50 Ger. Orient., 5, pp.

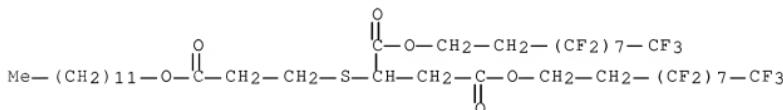
CODEN: GWXXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2338381	A1	19740228	DE 1973-2338381	197307 28
	US 3819666	A	19740625	US 1972-281085	197208 16
PRAI	US 1972-281085	A	19720816		
AB	<p>3-[1,2-Bis(1,1,2,2-tetrahydroperfluorodecyloxycarbonyl)ethylthio]propionic acid (I) [52978-18-4], RCH<sub>2</sub>CH<sub>2</sub>O<sub>2</sub>CCH(SCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H)CH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>R<sub>1</sub> (R and R<sub>1</sub> = C<sub>6</sub>F<sub>13</sub>-C<sub>8</sub>F<sub>17</sub>-C<sub>10</sub>F<sub>21</sub> mixture), [1,2-bis(1,1,2,2-tetrahydroperfluorodecyloxycarbonyl)ethylthio]succinic acid (II) [53051-36-8], [1,2-bis[2-[(ethyl)(perfluoroctylsulfonyl)amino]ethoxycarbonyl]ethylthio]succinic acid [52978-15-1], 5 similar compds., and 4 derivs. (esters and anhydrides) of these compds., useful for preparing oil- and water-repellent compns., were prepared. Thus, a mixture of bis(1,1,2,2-tetrahydroperfluorodecyl) fumarate [33072-51-4] 10.08, 3-mercaptopropionic acid [107-96-0] 1.11, Et<sub>3</sub>N 0.10, and MeCCl<sub>3</sub> 44 g was heated at 65.deg. to prepare 7.7 g I.</p>				
IT	52978-13-9P				
RL	PREP (Preparation)				
	(preparation of)				
RN	52978-13-9 HCPLUS				
CN	<p>Butanedioic acid, 2-[[3-(dodecyloxy)-3-oxopropyl]thio]-, 1,4-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)ester (CA INDEX NAME)</p>				



IC C07C

CC 35-2 (Synthetic High Polymers)

Section cross-reference(s): 23

IT 68-11-1DP, Acetic acid, mercapto-, reaction products with  
 bis(fluoroalkyl) fumarates 70-49-5DP, Butanedioic acid, mercapto-,  
 reaction products with bis(fluoroalkyl) fumarates 107-96-0DP,  
 Propanoic acid, 3-mercaptop-, reaction products with bis(fluoroalkyl)  
 fumarates 52978-12-8P 52978-13-9P 52978-14-0P  
 52978-15-1P 52978-16-2P 52978-17-3P 52978-18-4P 53051-36-8P  
 53187-17-0P

RL: PREP (Preparation)  
 (preparation of)

L6 ANSWER 3 OF 5 HCPLUS COPYRIGHT 2009 ACS on STN

AN 1974:553045 HCPLUS Full-text

DN 81:153045

OREF 81:23857a,23860a

TI Perfluoroalkyl alcohols

IN Kleiner, Eduard K.; Falk, Robert A.

PA Ciba-Geigy A.-G.

SO Ger. Offen., 43 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI DE 2338382	A1	19740228	DE 1973-2338382	197307 28
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PRAI US 1972-281084 A 19720816

AB 2-[1,2-Bis(1,1,2,2-tetrahydroperfluorodecoxy carbonyl)ethylthio]ethanol (I) [53027-85-3], RCH<sub>2</sub>CH<sub>2</sub>02CCH(CH<sub>2</sub>CO<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>R<sub>1</sub>)SCH<sub>2</sub>CH<sub>2</sub>OH (R and R<sub>1</sub> = C<sub>6</sub>F<sub>13</sub>-C<sub>8</sub>F<sub>17</sub>-C<sub>10</sub>F<sub>21</sub> mixture), 1,3-bis[1,2-bis(1,1,2,2-tetrahydroperfluorodecoxy carbonyl)ethylthio]-2-propanol [52978-19-5], and 9 similar alcs, useful as oil- and water-repellent finishes for textiles, etc., were prepared from bis(fluoroalkyl) fumarates and 2-mercaptopropanol [60-24-2], 1,3-dimercapto-2-propanol [584-04-3], 1,4-dimercapto-2,3-butanediol [7634-42-6], Dion DPM-3-800-LC (polymercaptan) [53027-87-5], or a similar compound. Thus, 0.005 mole bis(1,1,2,2-tetrahydroperfluorodecyl) fumarate [33072-51-4], 0.005 mole HSCH<sub>2</sub>CH<sub>2</sub>OH, 0.1 g Et<sub>3</sub>N, and 15 g MeCCl<sub>3</sub> were heated at 60.deg. to prepare 3.3 g I.

IT 53187-16-9P

RL: PREP (Preparation)  
 (preparation of)

RN 53187-16-9 HCPLUS



US 3886201	A	19750527	US 1971-199715	28
ZA 7207711	A	19730725	ZA 1972-7711	197111 17
AU 7248461	A	19740502	AU 1972-48461	197210 31
GB 1411614	A	19751029	GB 1972-51324	197211 02
FR 2165877	A1	19730810	FR 1972-40551	197211 07
IT 973549	B	19740610	IT 1972-54021	197211 15
BE 791446	A1	19730516	BE 1972-124202	197211 15
NL 7215531	A	19730521	NL 1972-15531	197211 16
JP 48061419	A	19730828	JP 1972-114912	197211 17
FR 2204621	A1	19740524	FR 1973-40506	197311 14
PRAI US 1971-199715	A	19711117		
US 1971-199791	A	19711117		

AB Reaction of a mercaptan containing .geq.1 SH groups with a fluoroalkyl fumarate gave the title sulfides and reaction of thiomalonic acid [70-49-5] with 1,1,2,2-tetrahydroperfluorodecyl acetate [37858-04-1] gave bis(1,1,2,2-tetrahydroperfluorodecyl) mercaptosuccinate [41395-79-3]. The title compds. (24 used) were useful as oil and water repellents for cotton and Dacron fabrics. Thus, MeCCl<sub>3</sub> containing bis(1,1,2,2-tetrahydroperfluorodecyl) fumarate [33072-51-4], butanedithiol [1191-08-8], and Et<sub>3</sub>N was heated 24 hr at 60.deg. to give 75% tetrabis(1,1,2,2-tetrahydroperfluorodecyl) (tetramethylenedithio)disuccinate (I) [41395-81-7], m. 60-1.deg.. Dacron fabric treated with a 3% solution of I (containing 60.68% F) in MeCCl<sub>3</sub> exhibited an oil repellency rating of 6 [on a scale of 1 (min.)-8(maximum)] in AATCC test 118-

1966T and a water repellency rating of 0 [on a scale of 0(min.)-100(maximum)] in AATCC test 22-1966 with 0.2% F on the fabric.

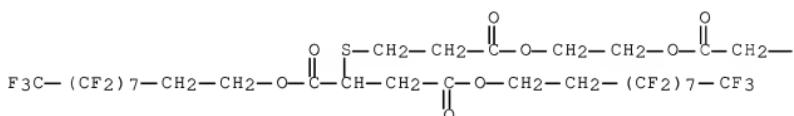
IT 42941-41-3 42941-42-4 42941-43-5

RL: USES (Uses)  
(soil repellents, for textiles)

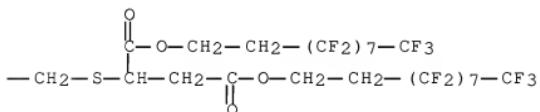
RN 42941-41-3 HCPLUS

CN 8,11-Dioxa-4,15-dithiaoctadecanedioic acid,  
3,16-bis[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10,  
heptadecafluorodecyl)oxylcarbonyl]-7,12-dioxo-,  
1,18-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)  
ester (CA INDEX NAME)

PAGE 1-A

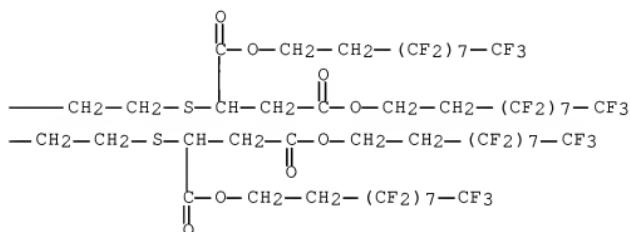
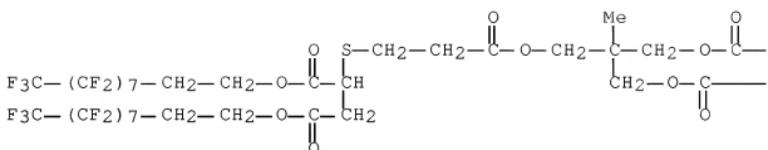


PAGE 1-B



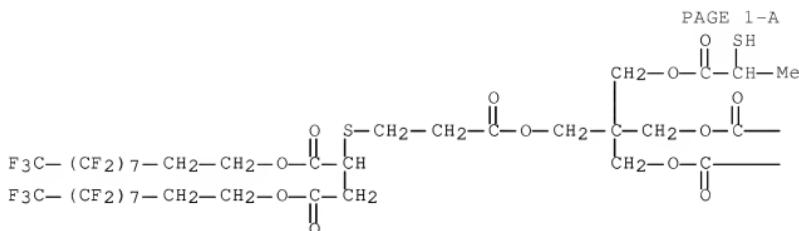
RN 42941-42-4 HCPLUS

CN 8,12-Dioxa-4,16-dithianonadecanedioic acid,  
3,17-bis[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10,  
heptadecafluorodecyl)oxy]carbonyl]-10-[3-[(3-  
[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-  
heptadecafluorodecyl)oxy]carbonyl)-3-oxopropyl]thio]-1-  
oxopropoxy]methyl]-10-methyl-7,13-dioxo-,  
1,19-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)  
ester (CA INDEX NAME)

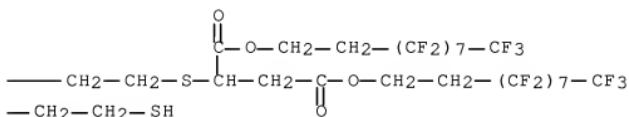


RN 42941-43-5 HCPLUS

CN 8,12-Dioxa-4,16-dithianonadecanedioic acid,  
 3,17-bis[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10,  
 heptadecafluorodecyl)oxy]carbonyl]-10-[(2-mercaptopro-1-  
 oxopropoxy)methyl]-10-[(3-mercaptopro-1-oxopropoxy)methyl]-7,13-dioxo-  
 1,19-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)  
 ester (CA INDEX NAME)



PAGE 1-B



IC C07C; D06M  
 CC 39-10 (Textiles)  
 Section cross-reference(s): 23, 25  
 IT 39466-57-4 39466-58-5 41395-79-3 41395-81-7 42941-36-6  
     42941-37-7 42941-38-8 42941-39-9 42941-40-2 42941-41-3  
     42941-42-4 42941-43-5 43030-37-1 43030-38-2  
     43193-00-6  
 RL: USES (Uses)  
     (soil repellents, for textiles)

L6 ANSWER 5 OF 5 HCPLUS COPYRIGHT 2009 ACS on STN  
 AN 1973:454840 HCPLUS Full-text  
 DN 79:54840  
 OREF 79:8847a,8850a  
 TI Free radical polymerization using perfluoroalkyl group-containing  
     mercaptans as chain-transfer agents  
 IN Falk, Robert A.; Kleiner, Eduard  
 PA Ciba-Geigy A.-G.  
 SO Ger. Offen., 74 pp.

CODEN: GWXXBX					
DT	Patent	KIND	DATE	APPLICATION NO.	DATE
LA	German				
FAN.CNT	2				
PI	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2253004	A1	19730524	DE 1972-2253004		197210 28
US 3758447	A	19730911	US 1971-199791		197111 17
CA 989999	A1	19760525	CA 1972-154962		197210 27
AU 7248461	A	19740502	AU 1972-48461		197211 02
CH 1612972	D	19740930	CH 1972-16129		197211 06
CH 561810	B5	19750515			
GB 1411614	A	19751029	GB 1972-51324		197211 07
IT 973549	B	19740610	IT 1972-54021		197211 15
BE 791446	A1	19730516	BE 1972-124202		197211 16
NL 7215532	A	19730521	NL 1972-15532		197211 16
AT 319595	B	19741227	AT 1972-9745		197211 16
CS 161967	B2	19750610	CS 1972-7774		197211 16
JP 48062879	A	19730901	JP 1972-114913		197211 17
BR 7208094	D0	19730925	BR 1972-8094		197211 17

FR 2204621

A1

19740524

FR 1973-40506

197311  
14PRAI US 1971-199791 A 19711117  
US 1971-199715 A 19711117

AB Polymers with low surface tension, especially useful as antisoiling finishes for textiles, consisted of  $(RfACHR3CR1R2S)mB[S(M)q]nH$  or  $(RfACHR3CR1R2S)(M)qH$ , R1, R2, R3 = H, Me, RfA, RfACH2 with .geq.1 of R1, R2, R3 = RfA or RfACH2; Rf = perfluoroalkyl; A = a group of the type  $(CH2)_kCO_2$ , k = 0-10; B = combining atom or group, e. g., C; m = 0-10; n = 1-9; M = monomeric group; q = >1. The polymers were prepared by polymerizing the monomer in the presence of a perfluorogroup-containing mercaptan chain-transfer agent, such as RfACHR3CR1R2SH. Thus, 10 parts 2:10 mercaptan chain-transfer agent [C8F17CH2CH2O2CH(SH)CH2CO2CH2CH2C8F17] [41395-79-3] - Me methacrylate (I) [80-62-6] mixture, 0.5% azobisisobutyronitrile (on weight I) and 20 parts EtOAc were polymerized for 16 hr at 70.deg. to give a product containing 0.85% F, number-average mol. weight 6815, and critical surface tension 14.3 dynes/cm compared with 39.0 dynes/cm for a sample similarly prepared but using no mercaptan chain-transfer agent.

IT 43021-07-4

RL: USES (Uses)

(soil-resistant finishes for textiles)

RN 43021-07-4 HCPLUS

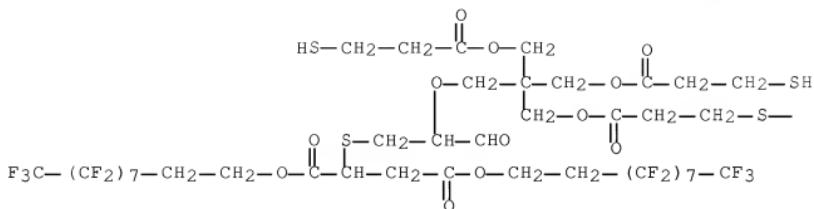
CN 6,10-Dioxa-3,14-dithiahexadecane-1,2,15,16-tetracarboxylic acid, 5-formyl-8,8-bis[(3-mercaptoproxy)oxopropoxy]methyl-11-oxo-, tetrakis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl) ester, polymer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

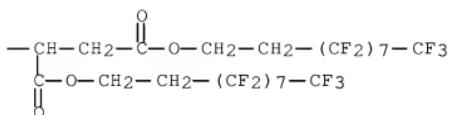
CRN 49857-56-9

CMF C65 H48 F68 O16 S4

PAGE 1-A



PAGE 1-B



CM 2

CRN 80-62-6  
CMF C5 H8 02



IC C08F

CC 39-10 (Textiles)

IT 43021-07-4

RL: USES (Uses)

(soil-resistant finishes for textiles)

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